



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,618	12/30/2003	Karlton David Powell	BAYM 101	7495

7590 09/07/2005

MIRCEA MICHAEL BAYER
101 BENNINGTON HILLS COURT
WEST HENRIETTA, NY 14586

EXAMINER

DUNWIDDIE, MEGHAN K

ART UNIT	PAPER NUMBER
----------	--------------

2875

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/748,618	Applicant(s) POWELL ET AL.	
	Examiner Meghan K. Dunwiddie	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 9, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 15 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/30/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/30/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is a Non-Final Rejection in response to the amendment filed on June 9, 2004 by **Powell et al.**

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on March 30, 2004 is in compliance with the provisions of 37 CFR 1.97, and accordingly, has been considered by the examiner.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

- "illumination system 150" [Page 30 lines 4-5 in reference to Figure 16A].

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities:
- On page 25, lines 2-3, an "illumination system" is referred to as element "108" in Figure 3. It appears that the "illumination system" should be labeled as "109" in Figure 3.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 14 recites the limitation "the microlens array structure of the optical sheet" in line 4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

7. The term "LHS plane" in claim 16 is a relative term which renders the claim indefinite. The term "LHS plane" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1, 3, and 7-13 are rejected under 35 U.S.C. 102(a) as being anticipated by **Nemoto et al.** (US 6363603).

10. In reference to Claim 1, **Nemoto et al.** shows a light homogenizing optical sheet [Figure 8A: (64)], comprising:

- A planar sheet [Figure 8A: (64)] made of transparent material with parallel front and back surfaces [Figure 8A],
- Each said front and back surface [Figure 8A] including a microlens array [Figure 8A: (65)] formed thereon,
- Said microlens array [Figure 8A: (65)] each including a plurality of microlenses [Figure 8A: (65)] each aligned and registered with a microlens [Figure 8A: (65)] on an opposite said front and back surfaces [Figure 8A],
- Said planar sheet [Figure 8A: (64)] having a sufficient thickness so that said microlenses [Figure 8A: (65)] on opposite said front and back surfaces [Figure 8A] are separated by a distance substantially equal to the focal length of said microlens [Figure 8A: (65)].

11. In reference to Claim 3, **Nemoto et al.** shows:

- The centers of said microlenses [Figure 8A: (65)] on said front surface and back surface are transversely aligned [Figure 8A].

12. In reference to Claim 7, **Nemoto et al.** shows:

- Planar sheet is made of flexible material [Figure 8A: (64)].

13. In reference to Claim 8, **Nemoto et al.** shows a light homogenizing optical sheet [Figure 8A: (64)], comprising:

- A non-planar sheet [Figure 8A: (64)] made of transparent material with parallel front and back surfaces [Figure 8A],
- Each said front and back surface [Figure 8A] including a microlens array [Figure 8A: (65)] formed thereon,
- Said microlens array [Figure 8A: (65)] each including a plurality of microlenses [Figure 8A: (65)] each aligned and registered on the radius of curvature of said sheet [Figure 8A: (64)].

14. In reference to Claim 9, **Nemoto et al.** shows a light homogenizing optical sheet [Figure 8A: (64)] comprising:

- A planar sheet [Figure 8A: (64)] made of transparent material with parallel front and back surfaces [Figure 8A],

Art Unit: 2875

- Each said front and back surface [Figure 8A] including a microlens array [Figure 8A: (65)] formed thereon,
- Said microlens array [Figure 8A: (65)] each including a plurality of microlenses [Figure 8A: (65)] each registered with a microlens [Figure 8A: (65)] on opposite said front and back surfaces [Figure 8A] such that exit cone angle [Figure 8A: (66)] is dependent on position across the sheet [Figure 8A: (64)],
- Said microlenses [Figure 8A: (65)] on opposite said front and back surfaces [Figure 8A] being separated by a distance of the sheet thickness substantially equal to the focal length of said microlens [Figure 8A: (65)].

15. In reference to Claim 10, **Nemoto** et al. shows:

- A second microlens array surface [Figure 12A: (56)] having non-equal pitch [Figure 8B: (68)], as compared to the front microlens array surface pitch [Figure 8A: (66)],
- Such that the lenslet centers of both front and back surfaces [Figure 8A] are aligned substantially near the enter of the active sheet [Figure 8A: (64)], yet lenslet centers near the edge of the active sheet [Figure 8A: (64)] exhibit transverse offsets of up to one lenslet spacing.

16. In reference to Claim 11, **Nemoto** et al. shows:

- Microlens array surface [Figure 8A: (64)] has offset of up to one lenslet spacing at a specific location within the plane of the sheet [Figure 8A: (64)].

Art Unit: 2875

17. In reference to Claim 12, **Nemoto** et al. shows:

- A second microlens array surface [Figure 12A: (56 or 57)] having substantially equal pitch [Figure 8A: (66)], as compared to the front microlens array surface pitch [Figure 8A: (66)],
- Such that the lenslet centers [Figure 8A: (65)] of both front and back surfaces [Figure 8A] are aligned with an offset of up to one lenslet spacing across the sheet.

18. In reference to Claim 13, **Nemoto** et al. shows:

- The centers of said lenslets [Figure 8A: (65)] on said front and back surfaces [Figure 8A] are aligned across the sheet [Figure 8A: (64)] with an offset of up to one lenslet while having non-equal pitch [Figure 8A: (68)].

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

20. Claims 2, 4-6, 14, 15, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tedesco** (US 5816681) in view of **Nemoto** et al. (US 6363603).

21. Regarding Claims 2 and 4, **Nemoto et al.** (US 6363603) shows one whole planar sheet, while Claims 2 and 4 recite a planar sheet with two parallel half-sheets laminated together.

22. It is well known to make changes in integration of parts where needed (see MPEP 2144.04; *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)).

23. It would have been obvious to one of ordinary skill in the art, at the time of the invention to provide a whole planar sheet in **Nemoto et al.** (US 6363603) since changes in the structure of the planar sheet would allow one to utilize different and more cost effective manufacturing processes of the planar sheet.

24. Regarding Claims 5 and 6, **Nemoto et al.** (US 6363603) shows one whole planar sheet, while Claims 5 and 6 recite a common substrate between said half-sheets.

25. It is well known to make changes in integration of parts where needed (see MPEP 2144.04; *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)).

26. It would have been obvious to one of ordinary skill in the art, at the time of the invention to provide a whole planar sheet in **Nemoto et al.** (US 6363603) since changes in the structure of the planar sheet would allow one to utilize different and more cost effective manufacturing processes of the planar sheet.

27. Claim 14, as well as can be understood, sets forth that an array of one or more light-emitting sources at a source plane tiled in a pattern substantially similar yet having a pitch equal to or greater than the tiling pattern of the microlens array structure of the optical sheet, collimating optics system having focal lengths f_c to collimate said sources of the source array, one optical sheet, and imaging optics system having focal length f_{o1} , so as to provide uniform intensity output versus position across the illumination plane within the illuminated area.

28. Regarding Claims 14 and 17-19, **Tedesco** shows:

- An illumination system [Figure 1A]
- An array of one or more light-emitting sources [Figure 1B: (120)]
- Collimating optics system [Figure 1B: (134)] having focal length f_c to collimate said sources of the source array [Figure 1B: (120)], one optical sheet, and imaging optics system having focal length f_{o1} , so as to provide uniform intensity output versus position across the illumination plane within the illuminated area [Figure 1A].
- An array of one or more light-emitting sources [Figure 1B: (120)] located in a source plane tiled in a pattern substantially similar yet having pitch equal to or greater than the tiling pattern of so as to provide uniform intensity output versus position across the illumination plane within the illuminated area [Figure 1A].
- At least one subsequent optical sheet separated by a propagation distance, so as to provide uniform intensity output versus position across the illumination

Art Unit: 2875

plane within the illuminated area as well as versus angle within the illuminated area [Figure 1A].

29. **Tedesco** does not show:

- A microlens array structure
- An optical sheet
- At least one optical sheet is a tailored optical sheet such that exit cone angles are allowed to overlap

30. **Nemoto et al.** teaches:

- A microlens array structure [Figure 8A: (65)]
- An optical sheet [Figure 8A: (64)]
- At least one optical sheet is a tailored optical sheet [Figure 8A: (64)] such that exit cone angles [Figure 8A: (66)] are allowed to overlap

31. It would have been obvious for one of ordinary skill in the art, at the time of the invention to combine an illumination system with an array of light-emitting sources and a collimating optics system as shown in **Tedesco** with the microlens array structure of the optical sheet taught in **Nemoto et al.** for the purpose and advantage of providing a uniform intensity across and within an area within a plane substantially parallel and located after the optical sheet.

Allowable Subject Matter

32. Claims 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

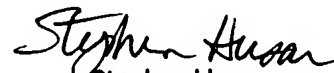
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meghan K. Dunwiddie whose telephone number is (571) 272-8543. The examiner can normally be reached on Monday through Friday 8 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MKD


Stephen Husar
Primary Examiner